

REMARKS

Summary of the Office Action

In the Office Action, the drawings and specification stand objected to for the reasons indicated.

Claims 1, 3, 4, 10-14 and 18-20 stand rejected under 35 U.S.C. § 112, 1st Paragraph.

Claims 10-14 stand rejected under 35 U.S.C. § 112, 2nd Paragraph.

Claims 1 and 20 have been objected to for minor informalities.

Claims 1, 3, 4, 10, 11, 13 and 18-20 have been rejected under 35 U.S.C. § 102 (b), as being anticipated by U.S. Patent No. 5,135,086 to *Ciolti*.

Claims 12 and 14 have been rejected under 35 U.S.C. § 103 (a), as being unpatentable over *Ciolti*.

Summary of the Response to the Office Action

Applicant proposes amending claims 1, 11, 14, 18 and 20. Accordingly, claims 1, 3, 4, 10-14 and 18-20 are pending for further consideration.

Objection to the Drawings

In the Office Action, the drawings stand objected to.

Specifically, the Office Action states (see Paragraph 3) that the elements of a connection point provided on the motor, the connection point corresponds to the connection point of a tool working with a high rotation speed, and a drive tool must be shown.

With regard to the aforementioned objections, Applicant respectfully asserts that the aforementioned limitations have been clearly presented in amended Fig. 3, as filed with the July 23, 2004 response. However, based upon the outstanding refusal of entry of amended Fig. 3 as filed with the July 23, 2004 response, Applicant herewith submits new amended Fig. 3 in conformance with the requirements set forth in the Office Action.

Applicant therefore respectfully requests withdrawal of the objections to the drawings.

Objection to the Specification

In the Office Action, the specification stands objected to as including grammatical or idiomatic errors.

Specifically, the Office Action states that the language of Paragraph [0031] “As the reduction amplifies in a corresponding manner, the torque on the output side, the torque threshold, can be made by means of the magnetic clutch with the clutch parts 32, 33,” is unclear.

In this regard, Applicant respectfully directs the Examiner’s attention to page 2 of the April 22, 2005 Amendment in which the last line of Paragraph [0031] was amended to clarify the language to “As the reduction ~~amplifies~~ increases in a corresponding manner, the torque on the output side, the torque threshold, can be ~~made~~ influenced by means of the magnetic clutch with the clutch parts 32, 33.”

Accordingly, Applicant respectfully requests withdrawal of the objection to the specification.

Rejection under 35 U.S.C. 112, 1st Paragraph

In the Office Action, claims 1, 3, 4, 10-14 and 18-20 stand rejected under 35 U.S.C. § 112, 1st Paragraph.

Specifically, with regard to independent claim 1, the Office Action states that the “specification des not describe limiting the transmission torque to a predetermined threshold value with the means for influencing.”

Applicant respectfully disagrees with this holding for the reasons presented below.

It is a general aspect of the present invention that the magnetic flux can be influenced, and this aspect is disclosed and described for each of the embodiments. For example, referring to Paragraph [0031], it is stated that “As the reduction amplifies in a corresponding manner, the torque on the output side, the torque threshold, can be made by means of the magnetic clutch with the clutch parts 32, 33.” Further, Paragraph [0033] states that “A modification of the air gap 12 between the magnetic clutch parts 22, 23 modifies the transmissible torque. So in the position according to Figure 4a, it is possible to transmit a greater torque by means of the

magnetic clutch than for the position shown in the Figure 4b of the clutch parts 22, 23, even though the greater air gap 12 is larger.” Yet further, Paragraph [0043] states that “In modifying the magnetic force of an electro magnet, the transmissible clutch torque can be influenced.”

Thus the disclosure of Paragraphs 31, 33 and 43 clearly describes how the transmission torque can be limited to a predetermined selectable threshold value, especially when viewed by one skilled in the art.

Yet further, Paragraph [0044] clearly describes how “The electromagnet, the field strength of which can be regulated, allows a regulation of the threshold torque.”

Thus Applicant respectfully asserts that one skilled in the art would readily understand how the transmission torque can be limited to a predetermined selectable threshold value.

However, in the interest of expediting prosecution of this application, Applicant proposes amending independent claims 1 and 20, as shown above, to delete the term “predetermined” and now recite “a means for influencing the transmission torque of the magnetic and/or magnetizable clutch element by modifying the magnetic flux of the clutch element, said means for influencing being movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value, said means for influencing thereby enabling generally continuous operation of a drive tool operated by said dental instrument to transmission torques generally below the selectable threshold value.”

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. 112, 1st Paragraph rejection of claims 1 and 20.

With regard to independent claim 18, the Office Action states that the “specification does not describe how the drive motor and connection point for a tool enables the instrument to utilize the reduction gear and magnetic clutch.” The Office Action further requests clarification for the phrase in Paragraph [0031], which recites “The drive part 31 has a connection on a drive motor, which is not represented, so that a dental angle piece is created.”

In this regard, Applicant respectfully notes that the dental angle piece must contain a drive motor. As shown in Fig. 1(a), a connection point 5 is connected to one side of clutch element 7.

Additionally, as discussed in Paragraph [0019] in the original specification, it is stated that:

“In addition, the dental instrument can have a drive motor with a high rotation speed and a reduction gear for reducing the rotation speed in a zone between 5 and 25 rotations/sec. This allows the instrument to continue to use existing drive motors when attaching the hand piece according to the invention. Other hand pieces can be attached to the motor by means of a connection point, which corresponds to the connection point of a hand piece with high rotation speed.”

As stated in Paragraph [0031]:

“The neck drive 1 of the Figure 1a, as well as the neck drive 21 of the Figure 2, can be positioned in an angle with respect to a drive part 31 represented in the Figure 3. The drive part 31 has a connection on a drive motor, which is not represented, so that a dental angle piece is created. Also the drive part 31 has a magnetic clutch with clutch parts 32, 33, that can be influenced by a corresponding transmission of the sleeve 13 known from the neck drive 1 of Figure 1. In addition, a reduction gear 34 is provided in the drive part 31 which reduces the high rotation speed produced from the drive motor. As the reduction increases in a corresponding manner, the torque on the output side, the torque threshold, can be influenced by means of the magnetic clutch with the clutch parts 32, 33.”

Thus, based on this exemplary discussion and the illustrations of Figs. 1, 3 and 15, Applicant respectfully asserts that one of ordinary skill in the art would readily understand the operation of a drive motor which is connected to the dental instrument of Fig. 15, the gear reduction which takes place by means of reduction gear 34 to reduce the motor rotation speed, and the operation of magnetic clutches 7, 11 and 32, 33.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. 112, 1st Paragraph rejection of claim 18.

Rejection under 35 U.S.C. 112, 2nd Paragraph

In the Office Action, claims 10-14 stand rejected under 35 U.S.C. 112, 2nd Paragraph.

Specifically, the Office Action indicates that with regard to claims 10, 11 and 13, it is unclear that “the magnetic clutch element” has been claimed to be further limited, and that the recitation of “the tool” in claims 11, 13 and 14 lacks antecedent basis.

With regard to the inquiry above, Applicant respectfully notes that dependent claim 10 further recites a switching means (i.e. switch 14) which cooperates with sleeve 13. The switching means is connected to the means for influencing the magnetic flux, which is described in paragraph [0029] and Fig. 1(b).

With regard to dependent claim 11, claim 11 recites a function of the magnetic clutch element after declutching, which is not recited in independent claim 1. The force in the opposite direction after declutching is a consequence of the design of the magnetic clutch element. It is therefore a physical effect depending on the construction, and in other terms, the magnetic clutch element does not prohibit the rotation in the opposite direction.

With regard to dependent claim 13, claim 13 recites the dental instrument of claim 1 including a drive tool, and a property of the transmission device of independent claim 1. As discussed above, the clutch element is designed such that the threshold torsion of a tool is never reached.

With regard to the noted recitation of “the tool” in claims 11 and 14, Applicant respectfully proposes amending claims 11 and 14 as shown above to recite “the drive tool.” Applicant further respectfully asserts that contrary to the rejection of claim 13 for recitation of “the tool,” claim 13 does not include the language “the tool.”

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. 112, 2nd Paragraph rejection of claims 10-14.

Objection to the Claims

In the Office Action, claims 1 and 20 have been objected to for minor informalities.

Applicant respectfully thanks the Examiner for the noted suggestions for amending the claim language, and proposes amending the claims as shown above.

Accordingly, Applicant respectfully requests withdrawal of the objection to claims 1 and 20.

All Claims are Allowable

In the Office Action, claims 1, 3, 4, 10, 11, 13 and 18-20 have been rejected under 35 U.S.C. § 102 (b), as being anticipated by U.S. Patent No. 5,135,086 to *Ciolti*. Claims 12 and 14 have been rejected under 35 U.S.C. § 103 (a), as being unpatentable over *Ciolti*. Applicant traverses these rejections for the following reasons.

Independent claim 1

With regard to independent claim 1, Applicant respectfully asserts that *Ciolti* does not teach or suggest a dental instrument having a transmission device with at least one magnetic and/or magnetizable clutch element, the clutch element having an air gap, the instrument including, “a means for influencing the transmission torque of the magnetic and/or magnetizable clutch element by modifying the magnetic flux of the clutch element, said means for influencing being movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value, said means for influencing thereby enabling generally continuous operation of a drive tool operated by said dental instrument to transmission torques generally below the selectable threshold value,” as recited in independent claim 1, as amended.

Support for these features recited in claim 1 can be found at least in Paragraphs 26-51 of the originally filed specification, and in Fig. 1a of the originally filed drawings. Specifically, as shown in Fig. 1a, the present invention provides a dental instrument having a transmission device with at least one magnetic and/or magnetizable clutch element 7, 11 including an air gap 12. The dental instrument includes a means for influencing the transmission torque of the magnetic and/or magnetizable clutch element 7, 11 by modifying the magnetic flux of the clutch elements. As recited in dependent claim 3 and dependent claim 19, in the embodiment of Fig. 1a, the means for influencing is a magnetically soft sleeve 13, movement of which enables modification of the flux guide between clutch elements 7, 11. Since reduction of the magnetic field is highest

in the position of sleeve 13 in relation to clutch elements 7, 11, when sleeve 13 is moved along shanks 2, 8 of the dental instrument, the reduction of the magnetic field between clutch elements 7, 11 and sleeve 13 is weakened, and the transmitted torque between clutch elements 7, 11 is amplified. As shown in Fig. 1a, the means for influencing (i.e. sleeve 3) is movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value. As discussed in Paragraphs 9 and 38, and as illustrated in Fig. 6, the means for influencing thereby enables generally continuous operation of a drive tool operated by the dental instrument to transmission torques generally below the selectable threshold value.

The Office Action cites *Ciolti* as teaching or suggesting the dental instrument as recited in claims 1, 3, 4, 10-14 and 18-20.

Ciolti, as illustrated in Figs. 2 and 3 thereof, discloses an assembly tool including clutch annulus 120 and a magnetic coil 144. When the magnet coil 144 is energized, the frictional clutch surface 126 of the clutch annulus 120 is drawn toward and contacts the clutch surface 132 of the annular clutch core 130, (Col. 6:40-43). Free rotation of the clutch annulus 120 is thereby inhibited such that the wrap-spring 100 is wound down and tightened about the aligned surfaces of the cylindrical barrel 88 of the input hub 76 and the cylindrical barrel 108 of the output hub 106, (Col. 6:44-48). Accordingly, power is transferred from the input hub 76 to the output hub 106, (Col. 6:48-50). The condition will continue as long as the magnet coil 144 of the electromagnetic assembly 140 is energized, (Col. 6:50-52). When the output sensor 22 of other control device has sensed that the instantaneous torque applied by the assembly tool 10 to a fastener has reached a predetermined level, the control terminates the flow of electrical energy to the magnet coil 144, (Col. 6:52-56). When the magnet coil 144 is de-energized, the clutch surface 126 of the clutch annulus 120 is released from contact with the clutch surface 132 of the clutch core 130, (Col. 6:57-60).

Thus as discussed above, *Ciolti* discloses a clutch that does not include an air gap while the clutch engages through clutch surfaces 126 and 132. The air gap only exists during declutching, (Col. 6:40-43). This renders the operational principle of the *Ciolti* assembly tool substantially different than that for the present invention transmission device.

With regard to independent claim 1 of the present invention, contrary to the transmission device recited in independent claim 1, *Ciolti* therefore clearly does not teach or suggest, a dental instrument having a transmission device with at least one magnetic and/or magnetizable clutch element, “the at least one clutch element having an air gap,” the instrument including “a means for influencing the transmission torque of the magnetic and/or magnetizable clutch element by modifying the magnetic flux of the clutch element, said means for influencing being movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value,” or “said means for influencing thereby enabling generally continuous operation of a drive tool operated by said dental instrument to transmission torques generally below the selectable threshold value,” as recited in independent claim 1, as amended.

Specifically, whereas the clutch device of *Ciolti* requires the use energizable magnet coil 144 to engage the clutch elements and the use of output sensor 22 to disengage the clutch elements when a predetermined torque is sensed, *Ciolti* clearly does not disclose the magnet coil 144 being movable for modifying the transmission torque. In other words, *Ciolti* clearly does not teach or suggest, “said means for influencing being movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value,” as recited in independent claim 1, as amended.

Further, since *Ciolti* discloses a clutch that does not include an air gap while the clutch engages through clutch surfaces 126 and 132, and the air gap only exists while declutching, (Col. 6:40-43), *Ciolti* also clearly does not teach or suggest, a dental instrument having a transmission device with at least one magnetic and/or magnetizable clutch element, “the at least one clutch element having an air gap,” as recited in independent claim 1, as amended. As noted above, the absence of the air gap during clutch engagement renders operation of the *Ciolti* assembly tool substantially different than that for the present invention transmission device.

Based on the lack of disclosure of the noted features clearly recited in independent claim 1, Applicant respectfully requests withdrawal of the outstanding rejection of claim 1 under *Ciolti* and allowance of independent claim 1.

As pointed out in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim.” “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros. v. Union Oil Co. Of California, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Moreover, as pointed out in M.P.E.P. § 2143.03, “[t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art”. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since these criteria have not been met, Applicant respectfully asserts that the rejection under 35 U.S.C. §§ 102 (b) and 103 (a) should be withdrawn because *Ciolfi* does not teach or suggest each feature of independent claim 1, as amended.

In view of the above arguments, Applicant respectfully requests the rejection of independent claim 1 under 35 U.S.C. § 102 be withdrawn. Additionally, claims 3, 4, 10-14, 18 and 19, which depend from independent claim 1, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

Allowance of Dependent claims 2, 5-9 and 15-17

Applicant respectfully asserts that under the provisions of MPEP 806.04(d), claim 1 is generic in that it reads on each of the embodiments of Figs. 1-14 and includes no material element additional to those recited in the species claims. Accordingly, under the provisions of MPEP 806.04(d), with regard to the remaining species (i.e. Figs. 2, 7, 8a-e, 9a, b, 10a, b, and 11-13), Applicant respectfully requests allowance of the remaining non-elected claims 2, 5-9 and 15-17, upon allowance of generic independent claim 1.

Independent claim 20

With regard to independent claim 20, Applicant respectfully asserts that *Ciolfi* does not teach or suggest a dental instrument having a transmission device with at least one magnetic and/or magnetizable clutch element, the clutch element having an air gap, the instrument including, “a means for influencing the transmission torque of the magnetic and/or magnetizable

clutch element by modifying the magnetic flux of the clutch element, said means for influencing being movable to modify the magnetic flux and thereby limit the transmission torque to a selectable threshold value, said means for influencing thereby enabling operation of a drive tool operated by said dental instrument to transmission torques generally below the selectable threshold value,” as recited in independent claim 20.

Applicant respectfully asserts that independent claim 20 is allowable for at least the reasons presented above for the allowance of independent claim 1, and the additional features recited therein.

CONCLUSION

In view of the foregoing, Applicant respectfully requests the entry of this Amendment to place the application in clear condition for allowance or, in the alternative, in better form for appeal. Applicant also requests the Examiner’s reconsideration and reexamination of the application and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant’s undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS:

The attached drawing sheets include changes to Fig. 3 illustrating the elements of a connection point provided on the motor, the connection point corresponds to the connection point of a tool working with a high rotation speed, and a drive tool.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

